

TECH CENTER 1500 2900

NOV 13 2001

RECEIVED

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/485,421A

DATE: 10/01/2001

TIME: 13:50:54

Input Set : A:\Upn-4023.seq.app.txt

Output Set: N:\CRF3\10012001\I485421A.raw

ENTERED

4 <110> APPLICANT: Ayyavoo, Velpandi
5 Patel, Mamata
6 Kieber-Emmons, Thomas
7 Weiner, David B.
8 Mahalingam, Sundaramy

10 <120> TITLE OF INVENTION: Functional Fragments of HIV-1 VPR Protein and Methods
11 of Using the Same

13 <130> FILE REFERENCE: UPN-4023

15 <140> CURRENT APPLICATION NUMBER: 09/485,421A

C--> 16 <141> CURRENT FILING DATE: 2001-09-17

18 <150> PRIOR APPLICATION NUMBER: 60/055,754

19 <151> PRIOR FILING DATE: 1997-08-14

21 <160> NUMBER OF SEQ ID NOS: 18

23 <170> SOFTWARE: PatentIn Ver. 2.1

25 <210> SEQ ID NO: 1

26 <211> LENGTH: 96

27 <212> TYPE: PRT

28 <213> ORGANISM: Artificial Sequence

30 <220> FEATURE:

31 <223> OTHER INFORMATION: Description of Artificial Sequence: Novel Sequence ✓

33 <400> SEQUENCE: 1

34 Met	Glu	Gln	Ala	Pro	Glu	Asp	Gln	Gly	Pro	Gln	Arg	Glu	Tyr	Pro	Asn
35 1				5				10						15	
37 Asp	Trp	Thr	Leu	Glu	Leu	Leu	Glu	Glu	Leu	Lys	Asn	Glu	Ala	Val	Arg
38 20								25						30	
40 His	Phe	Pro	Arg	Ile	Trp	Leu	His	Ser	Leu	Gly	Gln	His	Ile	Tyr	Glu
41 35								40						45	
43 Thr	Tyr	Gly	Asp	Thr	Trp	Thr	Gly	Val	Glu	Ala	Leu	Ile	Arg	Ile	Leu
44 50								55						60	
46 Gln	Gln	Leu	Leu	Phe	Ile	His	Phe	Arg	Ile	Gly	Cys	Arg	His	Ser	Arg
47 65								70						75	
49 Ile	Gly	Ile	Ile	Gln	Arg	Arg	Thr	Arg	Asn	Gly	Ala	Ser	Lys	Ser	
50 85								90						95	

53 <210> SEQ ID NO: 2

54 <211> LENGTH: 101

55 <212> TYPE: PRT

56 <213> ORGANISM: Artificial Sequence

58 <220> FEATURE:

59 <223> OTHER INFORMATION: Description of Artificial Sequence: Novel Sequence ✓

61 <400> SEQUENCE: 2

62 Met	Glu	Glu	Arg	Pro	Pro	Glu	Asn	Glu	Gly	Pro	Gln	Arg	Glu	Pro	Trp
63 1				5						10				15	
65 Asp	Glu	Trp	Val	Val	Glu	Val	Leu	Glu	Glu	Leu	Lys	Glu	Glu	Ala	Leu
66 20								25						30	
68 Lys	His	Phe	Asp	Pro	Arg	Leu	Leu	Thr	Ala	Leu	Gly	Asn	His	Ile	Tyr
69 35								40						45	
71 Asn	Arg	His	Gly	Asp	Thr	Leu	Glu	Gly	Ala	Gly	Glu	Leu	Ile	Arg	Ile

RAW SEQUENCE LISTING

DATE: 10/01/2001

PATENT APPLICATION: US/09/485,421A

TIME: 13:50:54

Input Set : A:\Upn-4023.seq.app.txt

Output Set: N:\CRF3\10012001\I485421A.raw

```

72      50      55      60
74 Leu Gln Arg Ala Leu Phe Met His Phe Arg Gly Gly Cys Ile His Ser
75 65      70      75      80
77 Arg Ile Gly Gln Pro Gly Gly Gly Asn Pro Leu Ser Ala Ile Pro Pro
78      85      90      95
80 Ser Arg Ser Met Leu
81      100
84 <210> SEQ ID NO: 3
85 <211> LENGTH: 111
86 <212> TYPE: PRT
87 <213> ORGANISM: Artificial Sequence
89 <220> FEATURE:
90 <223> OTHER INFORMATION: Description of Artificial Sequence: Novel Sequence ✓
92 <400> SEQUENCE: 3
93 Met Thr Asn Pro Arg Glu Thr Ile Pro Pro Gly Asn Ser Gly Glu Glu
94 1      5      10      15
96 Thr Ile Glu Glu Ala Phe Asp Trp Leu Asp Arg Thr Val Glu Ala Ile
97      20      25      30
99 Asn Arg Glu Ala Val Asn His Leu Pro Arg Glu Leu Ile Phe Gln Val
100      35      40      45
102 Trp Gln Arg Ser Trp Arg Tyr Trp His Asp Glu Gln Gly Met Ser Arg
103      50      55      60
105 Ser Tyr Thr Lys Tyr Arg Tyr Leu Cys Leu Met Gln Lys Ala Val Phe
106 65      70      75      80
108 Met His Phe Lys Lys Gly Cys Thr Cys Arg Gly Glu Gly His Gly Pro
109      85      90      95
111 Gly Gly Trp Arg Ser Gly Pro Pro Pro Pro Pro Pro Gly Leu
112      100      105      110
115 <210> SEQ ID NO: 4
116 <211> LENGTH: 96
117 <212> TYPE: PRT
118 <213> ORGANISM: Artificial Sequence
120 <220> FEATURE:
121 <223> OTHER INFORMATION: Description of Artificial Sequence: Novel Sequence ✓
123 <400> SEQUENCE: 4
124 Met Glu Gln Ala Pro Glu Asp Gln Gly Pro Gln Arg Glu Pro Tyr Asn
125 1      5      10      15
127 Asp Trp Thr Leu Glu Leu Leu Glu Glu Leu Lys Asn Glu Ala Val Arg
128      20      25      30
130 His Phe Pro Arg Ile Trp Leu His Ser Leu Gly Gln His Ile Tyr Glu
131      35      40      45
133 Thr Tyr Gly Asp Thr Trp Thr Gly Val Glu Ala Leu Ile Arg Ile Leu
134      50      55      60
136 Gln Gln Leu Leu Phe Ile His Phe Arg Ile Gly Cys Arg His Ser Arg
137 65      70      75      80
139 Ile Gly Ile Ile Gln His Arg Arg Thr Arg Asn Gly Ala Ser Lys Ser
140      85      90      95
143 <210> SEQ ID NO: 5
144 <211> LENGTH: 96

```

RAW SEQUENCE LISTING

DATE: 10/01/2001

PATENT APPLICATION: US/09/485,421A

TIME: 13:50:54

Input Set : A:\Upn-4023.seq.app.txt

Output Set: N:\CRF3\10012001\I485421A.raw

```

145 <212> TYPE: PRT
146 <213> ORGANISM: Artificial Sequence
148 <220> FEATURE:
149 <223> OTHER INFORMATION: Description of Artificial Sequence: Novel Sequence ✓
151 <400> SEQUENCE: 5
152 Met Glu Gln Ala Pro Glu Asp Gln Gly Pro Gln Arg Glu Pro Tyr Asn
153   1          5          10          15
155 Asp Trp Thr Leu Pro Leu Leu Pro Glu Leu Lys Asn Glu Ala Val Arg
156          20          25          30
158 His Phe Pro Arg Ile Trp Leu His Ser Leu Gly Gln His Ile Tyr Glu
159          35          40          45
161 Thr Tyr Gly Asp Thr Trp Thr Gly Val Glu Ala Leu Ile Arg Ile Leu
162          50          55          60
164 Gln Gln Leu Leu Phe Ile His Phe Arg Ile Gly Cys Arg His Ser Arg
165   65          70          75          80
167 Ile Gly Ile Ile Gln His Arg Arg Thr Arg Asn Gly Ala Ser Lys Ser
168          85          90          95
171 <210> SEQ ID NO: 6
172 <211> LENGTH: 96
173 <212> TYPE: PRT
174 <213> ORGANISM: Artificial Sequence
176 <220> FEATURE:
177 <223> OTHER INFORMATION: Description of Artificial Sequence: Novel Sequence ✓
179 <400> SEQUENCE: 6
180 Met Glu Gln Ala Pro Glu Asp Gln Gly Pro Gln Arg Glu Pro Tyr Asn
181   1          5          10          15
183 Asp Trp Thr Ala Glu Ala Ala Glu Glu Ala Lys Asn Glu Ala Val Arg
184          20          25          30
186 His Phe Pro Arg Ile Trp Leu His Ser Leu Gly Gln His Ile Tyr Glu
187          35          40          45
189 Thr Tyr Gly Asp Thr Trp Thr Gly Val Glu Ala Leu Ile Arg Ile Leu
190          50          55          60
192 Gln Gln Leu Leu Phe Ile His Phe Arg Ile Gly Cys Arg His Ser Arg
193   65          70          75          80
195 Ile Gly Ile Ile Gln His Arg Arg Thr Arg Asn Gly Ala Ser Lys Ser
196          85          90          95
199 <210> SEQ ID NO: 7
200 <211> LENGTH: 96
201 <212> TYPE: PRT
202 <213> ORGANISM: Artificial Sequence
204 <220> FEATURE:
205 <223> OTHER INFORMATION: Description of Artificial Sequence: Novel Sequence ✓
207 <400> SEQUENCE: 7
208 Met Glu Gln Ala Pro Glu Asp Gln Gly Pro Gln Arg Glu Pro Tyr Asn
209   1          5          10          15
211 Asp Trp Thr Leu Glu Leu Leu Glu Glu Leu Lys Asn Glu Ser Val Arg
212          20          25          30
214 His Phe Pro Arg Ile Trp Leu His Ser Leu Gly Gln His Ile Tyr Glu
215          35          40          45

```

RAW SEQUENCE LISTING

DATE: 10/01/2001

PATENT APPLICATION: US/09/485,421A

TIME: 13:50:54

Input Set : A:\Upn-4023.seq.app.txt

Output Set: N:\CRF3\10012001\I485421A.raw

217 Thr Tyr Gly Asp Thr Trp Thr Gly Val Glu Ala Leu Ile Arg Ile Leu
 218 50 55 60
 220 Gln Gln Leu Leu Phe Ile His Phe Arg Ile Gly Cys Arg His Ser Arg
 221 65 70 75 80
 223 Ile Gly Ile Ile Gln His Arg Arg Thr Arg Asn Gly Ala Ser Lys Ser
 224 85 90 95

227 <210> SEQ ID NO: 8

228 <211> LENGTH: 96

229 <212> TYPE: PRT

230 <213> ORGANISM: Artificial Sequence

232 <220> FEATURE:

233 <223> OTHER INFORMATION: Description of Artificial Sequence: Novel Sequence ✓

235 <400> SEQUENCE: 8

236 Met Glu Gln Ala Pro Glu Asp Gln Gly Pro Gln Arg Glu Pro Tyr Asn
 237 1 5 10 15
 239 Asp Trp Thr Leu Glu Leu Leu Glu Glu Leu Lys Asn Glu Leu Val Arg
 240 20 25 30
 242 His Phe Pro Arg Ile Trp Leu His Ser Leu Gly Gln His Ile Tyr Glu
 243 35 40 45
 245 Thr Tyr Gly Asp Thr Trp Thr Gly Val Glu Ala Leu Ile Arg Ile Leu
 246 50 55 60

248 Gln Gln Leu Leu Phe Ile His Phe Arg Ile Gly Cys Arg His Ser Arg
 249 65 70 75 80
 251 Ile Gly Ile Ile Gln His Arg Arg Thr Arg Asn Gly Ala Ser Lys Ser
 252 85 90 95

255 <210> SEQ ID NO: 9

256 <211> LENGTH: 96

257 <212> TYPE: PRT

258 <213> ORGANISM: Artificial Sequence

260 <220> FEATURE:

261 <223> OTHER INFORMATION: Description of Artificial Sequence: Novel Sequence ✓

263 <400> SEQUENCE: 9

264 Met Glu Gln Ala Pro Glu Asp Gln Gly Pro Gln Arg Glu Pro Tyr Asn
 265 1 5 10 15
 267 Asp Trp Thr Leu Glu Leu Leu Glu Glu Leu Lys Asn Glu Ala Val Arg
 268 20 25 30
 270 His Phe Pro Arg Ile Trp Leu His Ser Leu Gly Gln His Ile Tyr Glu
 271 35 40 45
 273 Thr Tyr Gly Asp Thr Trp Thr Gly Val Glu Pro Leu Ile Arg Ile Leu
 274 50 55 60

276 Gln Gln Leu Leu Phe Ile His Phe Arg Ile Gly Cys Arg His Ser Arg
 277 65 70 75 80
 279 Ile Gly Ile Ile Gln His Arg Arg Thr Arg Asn Gly Ala Ser Lys Ser
 280 85 90 95

283 <210> SEQ ID NO: 10

284 <211> LENGTH: 96

285 <212> TYPE: PRT

286 <213> ORGANISM: Artificial Sequence

288 <220> FEATURE:

RAW SEQUENCE LISTING

DATE: 10/01/2001

PATENT APPLICATION: US/09/485,421A

TIME: 13:50:54

Input Set : A:\Upn-4023.seq.app.txt

Output Set: N:\CRF3\10012001\I485421A.raw

289 <223> OTHER INFORMATION: Description of Artificial Sequence: Novel Sequence ✓

291 <400> SEQUENCE: 10

292 Met Glu Gln Ala Pro Glu Asp Gln Gly Pro Gln Arg Glu Pro Tyr Asn

293 1 5 10 15

295 Asp Trp Thr Leu Glu Leu Leu Glu Glu Leu Lys Asn Glu Ala Val Arg

296 20 25 30

298 His Phe Pro Arg Ile Trp Leu His Ser Leu Gly Gln His Ile Tyr Glu

299 35 40 45

301 Thr Tyr Gly Asp Thr Trp Thr Gly Val Glu Ala Leu Ile Arg Ser Leu

302 50 55 60

304 Gln Gln Leu Leu Phe Ile His Phe Arg Ile Gly Cys Arg His Ser Arg

305 65 70 75 80

307 Ile Gly Ile Ile Gln His Arg Arg Thr Arg Asn Gly Ala Ser Lys Ser

308 85 90 95

311 <210> SEQ ID NO: 11

312 <211> LENGTH: 96

313 <212> TYPE: PRT

314 <213> ORGANISM: Artificial Sequence

316 <220> FEATURE:

317 <223> OTHER INFORMATION: Description of Artificial Sequence: Novel Sequence ✓

319 <400> SEQUENCE: 11

320 Met Glu Gln Ala Pro Glu Asp Gln Gly Pro Gln Arg Glu Pro Tyr Asn

321 1 5 10 15

323 Asp Trp Thr Leu Glu Leu Leu Glu Glu Leu Lys Asn Glu Ala Val Arg

324 20 25 30

326 His Phe Pro Arg Ile Trp Leu His Ser Leu Gly Gln His Ile Tyr Glu

327 35 40 45

329 Thr Tyr Gly Asp Thr Trp Thr Gly Val Glu Ala Leu Ile Arg Ile Leu

330 50 55 60

332 Gln Gln Ser Leu Phe Ile His Phe Arg Ile Gly Cys Arg His Ser Arg

333 65 70 75 80

335 Ile Gly Ile Ile Gln His Arg Arg Thr Arg Asn Gly Ala Ser Lys Ser

336 85 90 95

339 <210> SEQ ID NO: 12

340 <211> LENGTH: 96

341 <212> TYPE: PRT

342 <213> ORGANISM: Artificial Sequence

344 <220> FEATURE:

345 <223> OTHER INFORMATION: Description of Artificial Sequence: Novel Sequence ✓

347 <400> SEQUENCE: 12

348 Met Glu Gln Ala Pro Glu Asp Gln Gly Pro Gln Arg Glu Pro Tyr Asn

349 1 5 10 15

351 Asp Trp Thr Leu Glu Leu Leu Glu Glu Leu Lys Asn Glu Ala Val Arg

352 20 25 30

354 His Phe Pro Arg Ile Trp Leu His Ser Leu Gly Gln His Ile Tyr Glu

355 35 40 45

357 Thr Tyr Gly Asp Thr Trp Thr Gly Val Glu Ala Leu Ile Arg Ile Leu

358 50 55 60

360 Gln Gln Leu Ser Phe Ile His Phe Arg Ile Gly Cys Arg His Ser Arg

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/485,421A

DATE: 10/01/2001

TIME: 13:50:56

Input Set : A:\Upn-4023.seq.app.txt

Output Set: N:\CRF3\10012001\I485421A.raw

L:16 M:271 C: Current Filing Date differs, Replaced Current Filing Date